tripodmaker

User manual v2

Version 1.0

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Welcome to Tripodmaker

Introduction

Thank you for your purchase of Tripodmaker!

This is the user manual for your Tripodmaker v2. In this manual, you will be guided through the printing process.

Read this manual carefully and take the needed time to get familiar with your new product. This is a manufacturing device that requires thorough understanding.

This manual is a work in progress. If for any reason something would be unclear or wrong, feel free to contact support: support@tripodmaker.com

Specifications of the Tripodmaker

Printing

Print technology	Fused Deposition Modeling (FDM) Delta Robot
Layer thickness	75 - 250 microns
Precision	±0.1 mm
Filament Diameter	1.75 mm
Nozzle Diameter	0.4 mm
Print speed	20 - 150 mm/s
Traveling speed	20 - 150 mm/s

Software

Provided software	Repetier Host Cura Engine and Slic3r
Printable files	.STL
Supports	Windows XP and higher Mac OS X 10.6 and higher

Physical dimensions

Frame dimensions	X 50.0 cm Y 51.0 cm Z 101.0 cm
Printer dimensions	X 58.0 cm Y 54.0 cm Z 101.0 cm

Temperature

Operating temperature	15 - 32 deg. C
Storage temperature	0 - 21 deg. C
Operating nozzle temperature	180 - 295 deg. C
Operating bed temperature	50 - 90 deg. C

Electrical

AC input	88 - 264 V 47 - 63 Hz 5A
Connectivity	Stand alone printing from SD card USB

Shipping dimensions	X 45.0 cm Y 55.0 cm Z 110.0 cm
Weight	19 kg
Shipping weight	21 kg

Get started with Tripodmaker

What's in the box

Next to your Tripodmaker, which had the SD-card inserted, there are other components in the box. Here the list:

Filament spool

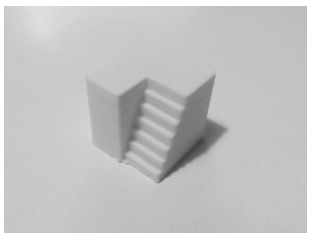
Spool holder and screws

Painters tape

Power cable

USB cable

Test print



User manual

Unboxing

1. Place the Tripodmaker box on a stable surface with great access on all sides.

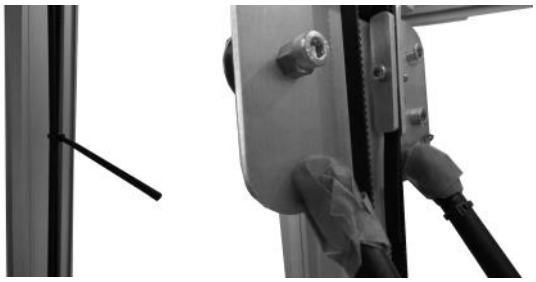
Open the box from the top and you will find a spool with PLA filament, this user manual, cables, blue painters tape, filament holder and a test print.

Remove the first cardboard layer.

Lift up your Tripodmaker with 2 hands on the top of the frame.

Caution: Do not lift the Tripodmaker on internal parts.

2. Position your Tripodmaker on a sturdy table.



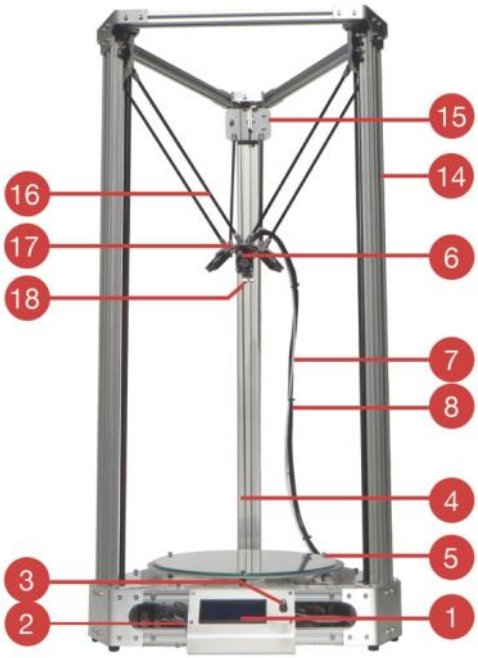
Uncut and remove **3 tiewraps** that are strapped around the belts.

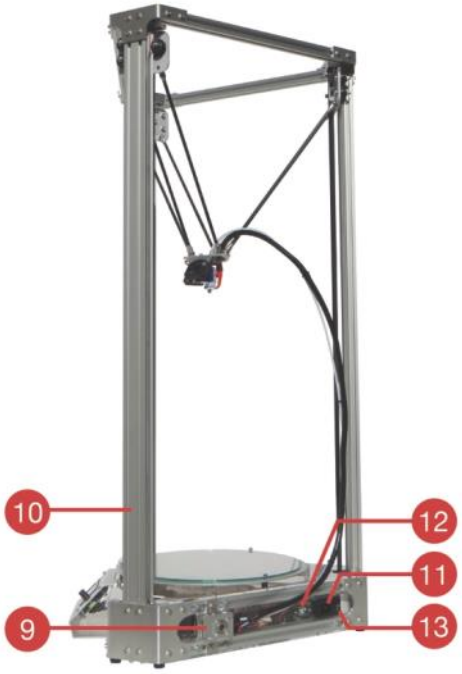
Remove all **blue tape** to hold the magnet contacts

3. Push up the carts on their vertical slides in order to lift up the printer head.
Remove all protective material from the printer left.

Terminology

1. Display
2. SD-card slot
3. Push and rotate button
4. Build plate
5. Leveling screws
6. Print head or hot-end
7. Filament guide tube
8. Print head cables
9. Filament driver





10. Spool holder mounting location
11. Power Socket
12. USB Socket
13. Power switch
14. Vertical slides
15. Carts
16. Magnetic rods
17. Ball joints
18. Nozzle

Get your Tripodmaker ready

Spool holder

Attaching the spool holder

1. The spool holder is mounted with two T-nuts and two M4 x 8 bolts.

2. Mount the holder on the vertical slide near the filament driver by sliding the T-nuts in the aluminum beam.

3. Position the holder and screw on the M4 x 8 nuts firmly. By turning the bolts, the T-nut will rotate inside the aluminum beam and hook behind the profile edges. Make sure the T-nuts turn 90 degrees.

Detaching the spool holder

Untighten the M4 x 8 nuts. The T-nuts will align with the profile edges and you will be able to remove the spool holder.

Power supply

Attaching the power supply

1. Make sure your power switch is in the OFF [o] position before you plug in the power cable.

2. Connect the power cable to the printer.

3. Next, insert the power cable in the wall socket.

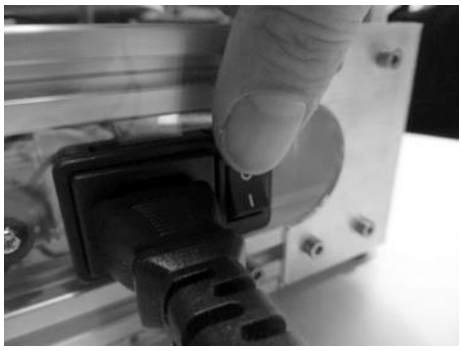
Detaching the power supply

1. Make sure your power switch is in the OFF [o] position before detaching the power supply.

2. The cable can be detached from the socket by pulling it out gently.

Power switch

1. The ON/OFF button of the Tripodmaker is located at the right side. The [I] represents ON and [o] represents OFF.



Turning the Tripodmaker ON lights up the LCD screen.

2 Switching OFF of the Tripodmaker can be done at any time, however it is recommended to only turn it of when not in use.

Turning the Tripodmaker OFF extinguishes the LCD screen.

First use of your Tripodmaker

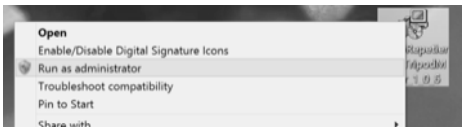
Downloading and installing software

Before getting started, your Tripodmaker needs to be leveled. This requires software on your computer in order to control your print head.

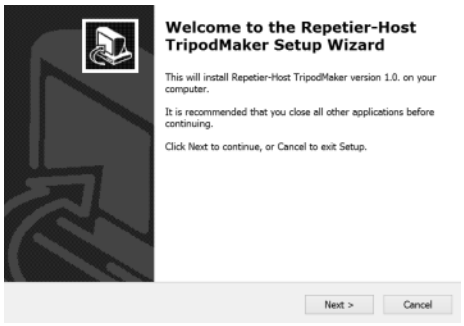
Microsoft Windows

Go to Tripodmaker.com/downloads and get your latest version of *setupRepetierHostTripodmaker.exe*.

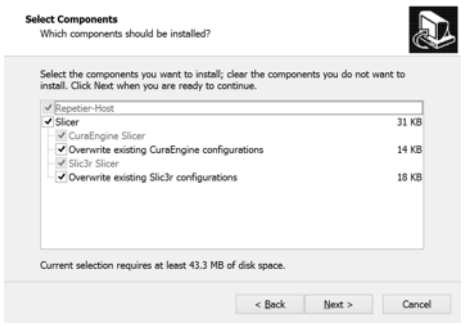
1. Unpack the .ZIP file and run the exe-file as administrator.



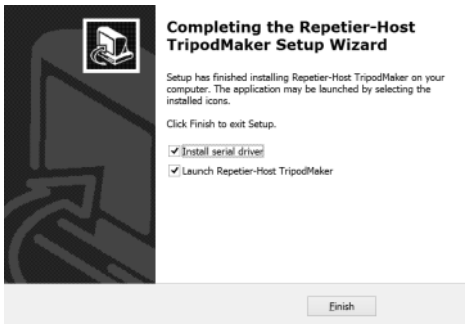
2. Choose your preferred language and continue the installation by pressing *Next*.


Welcome to the Repetier-Host TripodMaker Setup Wizard
This will install Repetier-Host TripodMaker version 1.0. on your computer.
It is recommended that you close all other applications before continuing.
Click Next to continue, or Cancel to exit Setup.
Next >
Cancel

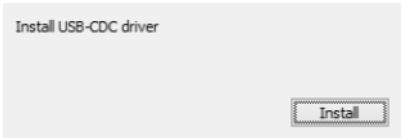
3. If this is your first install, overwrite the slicer settings. If not, you can uncheck boxes in order to not overwrite previously saved slicer settings.


Select Components
Which components should be installed?
Select the components you want to install; clear the components you do not want to install. Click Next when you are ready to continue.
Repetier-Host
Slicer 31 KB
CuraEngine Slicer
Overwrite existing CuraEngine configurations 14 KB
Slic3r Slicer
Overwrite existing Slic3r configurations 18 KB
Current selection requires at least 43.3 MB of disk space.
< Back
Next >
Cancel

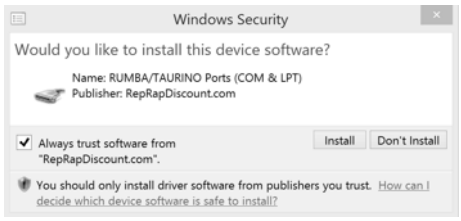
4. After completing the installation process, press *Finish* by installing the serial driver in order to connect to your printer.


Completing the Repetier-Host TripodMaker Setup Wizard
Setup has finished installing Repetier-Host TripodMaker on your computer. The application may be launched by selecting the installed icons.
Click Finish to exit Setup.
Install serial driver
Launch Repetier-Host TripodMaker
Finish

5. Install the USB-CDC driver. This will create the ability to create a COM-port when your printer is connected.



6. Press *Install* in the Windows Security screen.

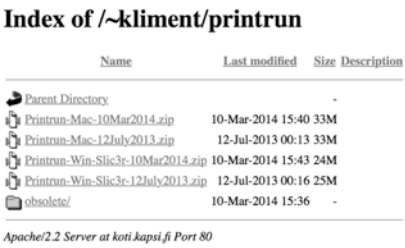

Windows Security
Would you like to install this device software?
Name: RUMBA/TAURINO Ports (COM & LPT)
Publisher: RepRapDiscount.com
Always trust software from "RepRapDiscount.com".
Install
Don't Install
You should only install driver software from publishers you trust. How can I decide which device software is safe to install?

7. When the installation is complete, press *Exit*.

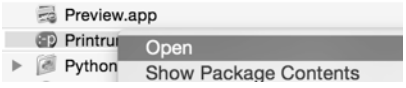
8. Repetier Host for Tripodmaker can now be launched.

Mac Os X

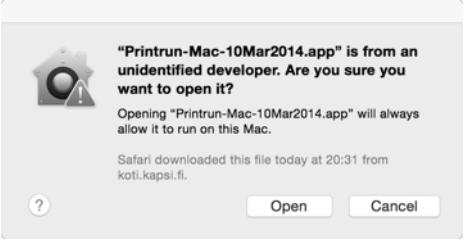
1. Go to Tripodmaker.com/downloads and get your latest version of *Printrun*. Download and unzip the file to a desired location.



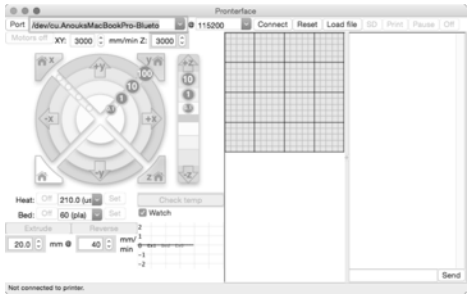
2. Right click the unpacked application and click *open*.



3. Click *open* to continue in the pop-up screen.


"Printrun-Mac-10Mar2014.app" is from an unidentified developer. Are you sure you want to open it?
Opening "Printrun-Mac-10Mar2014.app" will always allow it to run on this Mac.
Safari downloaded this file today at 20:31 from koti.kapsi.fi.
Open
Cancel

4. Printrun-Mac is installed.



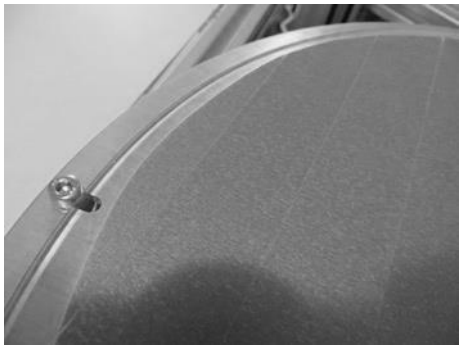
Leveling the build plate

To get the print stick to the build plate, the nozzle needs to be close enough to the build plate. If the nozzle is to close, plastic might be unable to come out or the nozzle could even scratch the build platform.

1. In order to get your print to stick successfully to the print bed, blue painters tape is used to cover the print bed.

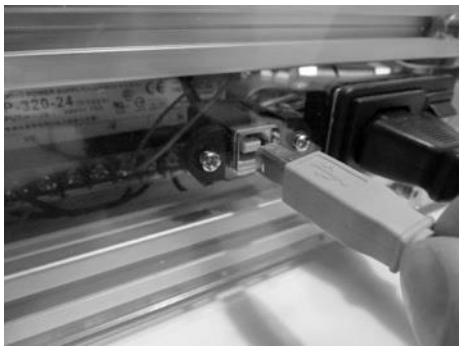
Lay down parallel strips of tape to cover up your printer bed

2. You can tidy up the edges by using a cutter on the glass print bed.



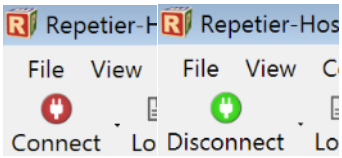
Microsoft Windows

1. Power up your Tripodmaker and connect it with the USB cable to your computer.



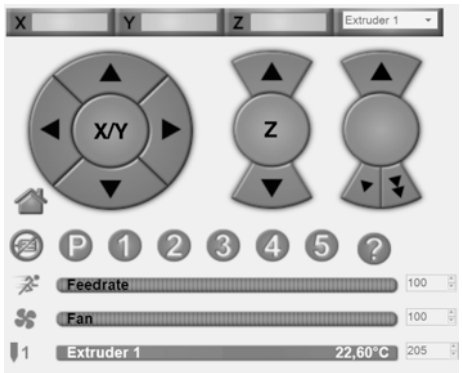
2. Open Repetier Host Tripodmaker

3. Connect your Tripodmaker by clicking the *Connect* button. It will turn green if successfully connected.

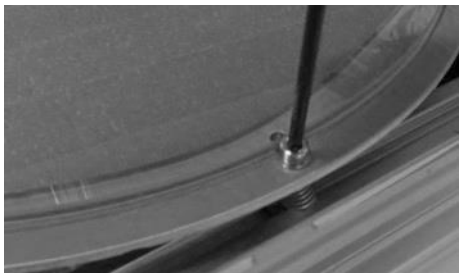


4. Navigating your printer head is done in the *manual control tab.* Press home (🏠) before using any navigation buttons. The print head now moves up towards the end stops.

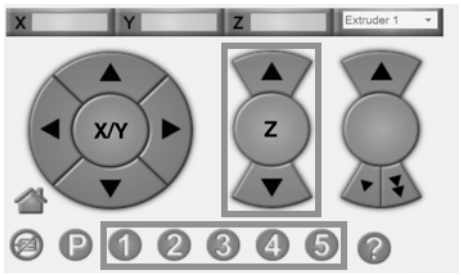
! Attention: Do not use the X/Y navigation as the vertical carts might crash on the end stops.



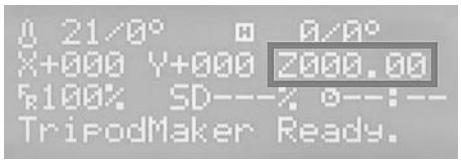
5. Screw down the build plate by rotating the screws clock wise until the lowest position is found



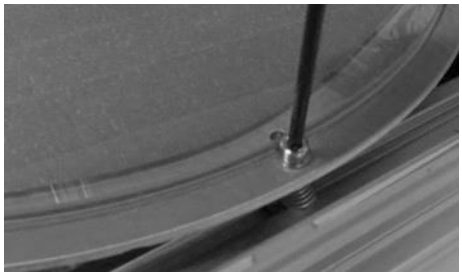
6. Use the predefined positions buttons (1 – 4) on the manual control tab to move the printer head quickly around to a position 10mm above the print bed. Use the Z-control to carefully lower until Z000.00, the lowest position.



! Attention: Leaving too much time between movements disables the motors and leads to loss of cart position. Re-use the home button (⌂) to have a good position reference in case the carts were able to move freely.



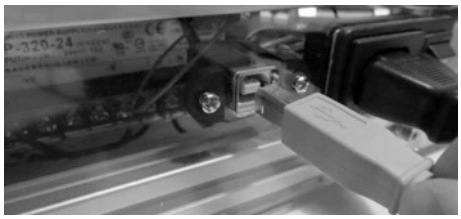
7. Now level your build plate and by turning the set srews. Loop this procedure a few times on all of the positions 1, 2 and 3. Verify your leveling on position 4.



Advice on leveling is found in the Leveling Procedure section.

Mac OS X

1. Power up your Tripodmaker and connect it with the USB cable to your computer.

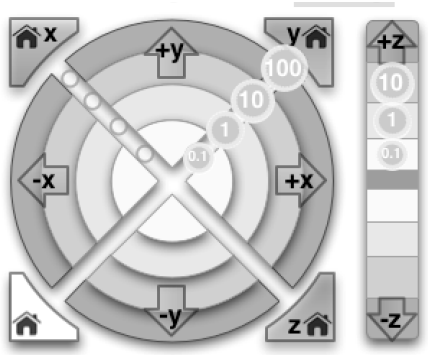


2. Open Printrun-Mac

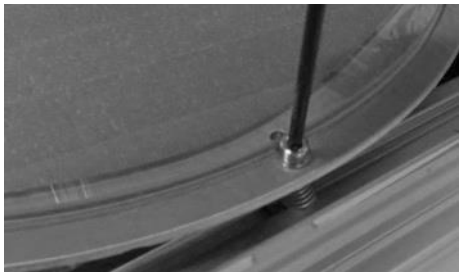
3. Connect your Tripodmaker by clicking the *Connect* button. Make sure you have selected the correct port (you are looking for *usbmodem* port) and have set the correct Baudrate of 115200.

4. Press the white home button (⌂) before using any navigation buttons. The print head now moves up towards the end stops.

! Attention: Do not use the X/Y navigation as the vertical carts might crash on the end stops.



5. Screw down the build plate by rotating the screws clock wise.

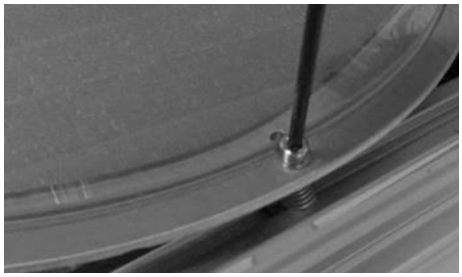


6. Use the Z controller to move the print head down.

Z000.00 should be readable on the printer controller to show that the printer head is at its lowest position.

! Attention: When the printer wasn't homed before, Z000.00 is also shown.

7. Navigate your print head around the build plate with the X/Y controller and adjust the 3 leveling screws with a size 3 allen wrench.



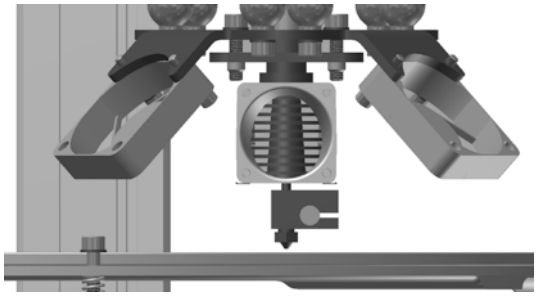
! Attention: Leaving too much time between movements disables the motors and leads to loss of cart position. Re-use the home button (⌂) to have a good position reference in case the carts were able to move freely.

Advice on leveling is found in the Leveling Procedure section.

Leveling procedure

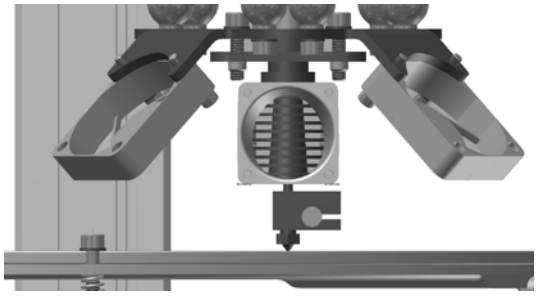
You want the nozzle to be as close as the thickness of a piece of paper or less, without touching the build plate.

! To big air gap



Turn the three screws counter clockwise so that the build plate comes up.

✓ No air gap
✓ No contact with the build plate



You are ready to go!

Loading and unloading filament

Loading filament

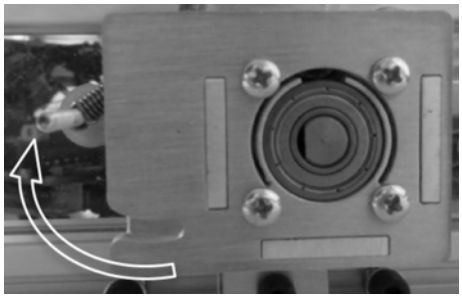
1. Preheat your Tripodmaker by navigating with the button towards *>Menu >Control >Temperature >Nozzle.*

Set the temperature within the use envelope of the material.

! Attention: Exceeding the allowed temperatures can ignite material in the printer head. Always be careful when changing materials.

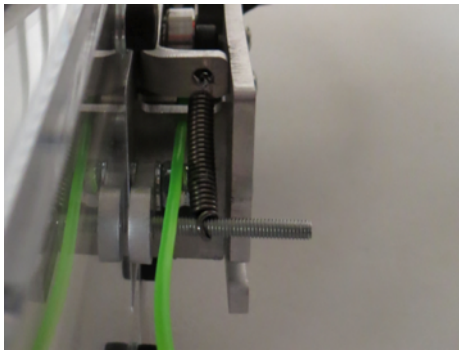
Suggested temperatures:
PLA: ~205 degrees Celsius
ABS: ~235 degrees Celsius

2. Lift the lever, to unlock the filament driver.



3. Straighten the filament so it can be guided easily through the extruder drive mechanism.

4. Insert the filament in the extruder. Make sure to insert the filament above the leaver and at the left side of the spring. A bit of twisting the filament will be necessary in order to get the filament in the white nylon tube.

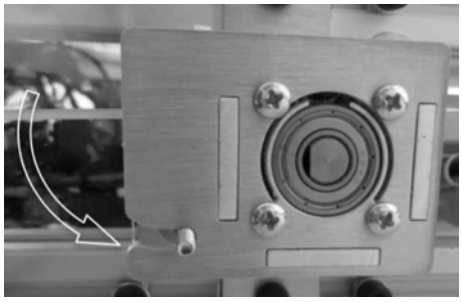


5. Feed the filament in the nylon tube. Keep track where the filament is inside the tube and feed it until you are nearly at the end of the tube.

6. An additional length of about 5 cm to 7 cm needs to be pushed inside the nozzle. This often requires some wiggling of the tube to get the filament deep enough in the hot-end.

7. As the nozzle of the hot-end is hot, you should be able to push out some plastic by feeding the filament manually. The filament color can differ from your filament spool, as a residue can be left behind from the previous (test) print.

8. Once some plastic oozed out, lock the lever in its down position.



Unloading filament

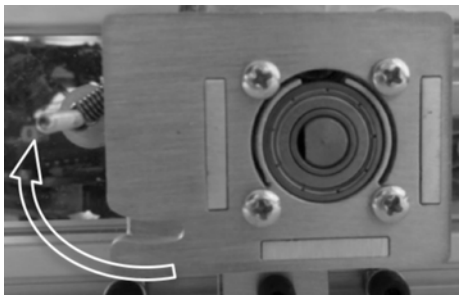
1. Preheat your Tripodmaker by navigating with the button towards *>Menu >Control >Temperature >Nozzle.*

Set the temperature within the use envelope of the material.

! Attention: Exceeding the allowed temperatures can ignite material in the printer head. Always be careful when changing materials. Check your spool for the temperature envelope of your material.

Suggested temperatures are:
PLA: 205 degrees Celsius
ABS: 235 degrees Celsius

2. Lift the lever, to unlock the filament driver.



3. Pull back the filament.

Make your first 3D print

If your Tripodmaker is leveled properly and the filament is loaded, you are ready for your first print!

1. Insert your SD-card in the SD-card slot

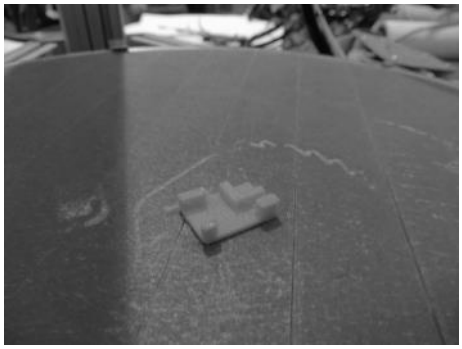
2. Navigate to the SD-Card folder by navigating with the button towards *>Menu >Print from SD.*

3. Select the test file.

! Attention: make sure your plate is free of objects.

Your printer will home, heat up and start the print.

! Attention: During the printing process, the hot-end and print bed can get hot. Do not touch these until printing is done.



4. To remove the print, simply pull it off. To get big objects of the build plate, a putty knife might be useful.

! Attention: Prints that were just completed can be hot.

Generate your Print file on your computer

Congratulations! You just completed the test file. Now continue on generating your own printable files.

Print files are the result of a process called "slicing". There are 3 main slicer programs currently available:

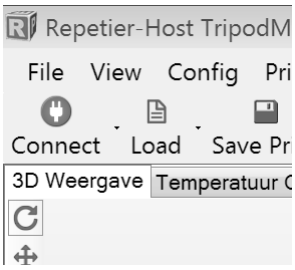
1. CuraEngine
2. Slic3r
3. Kisslicer (only single nozzle available for free)

Depending on the operating system you use, there is a slightly different approach.

Generate files on Windows with RepetierHost

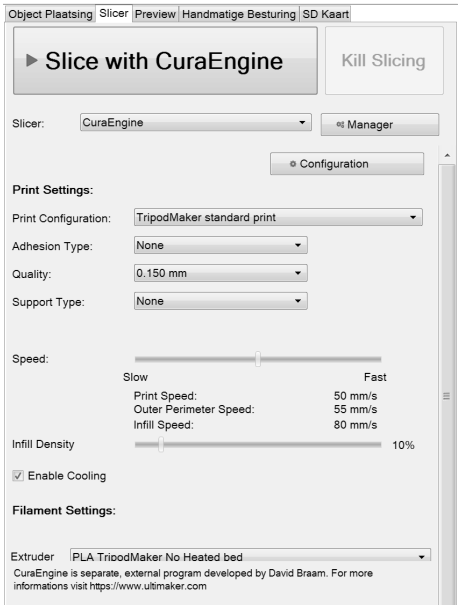
RepetierHost for Tripodmaker already contains several predefined settings for multiple materials and has CuraEngine and Slic3r preinstalled. We recommend using CuraEngine to slice your files. Slic3r can be something to experiment with if results are not meeting your requirements while using CuraEngine.

1. Press *Load* to place an STL file in your Repetier Host for Tripodmaker. To keep things simple, we suggest printing a small test cube.



You can find the test cube on the download page of Tripodmaker.com.

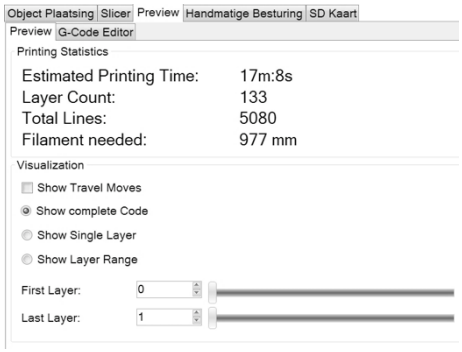
2. Match the settings for this print with the picture and press *Slice with CuraEngine*.



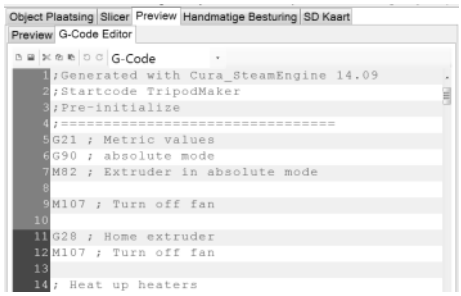
Attention: If you don't see the predefined settings, you didn't properly unpacked the ZIP-file before installing.

3. You will see a preview of the generated G-Code and an estimation of printing time and layer count in the *Preview* tab.

In the G-Code Editor tab, press the save button to save the file on the SD-card.



4. In the G-Code Editor tab, press the save button (💾) to save the file on the SD-card.



4. Insert the SD-Card in your Tripodmaker SD-Card slot. Navigate to the print file with the button towards *>Menu >Print from SD.*

5. The print will start.

Generate files on Mac OS X and Windows with Cura

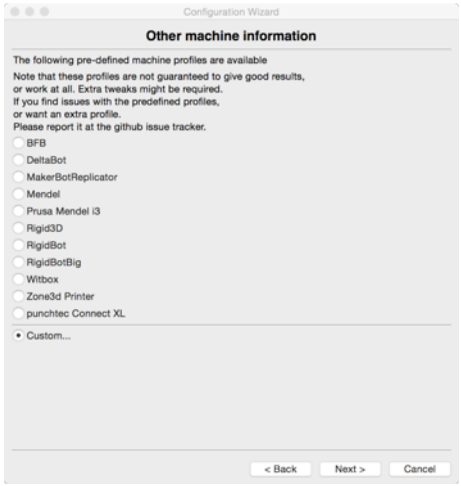
A preinstalled Repetier Host for Tripodmaker is not available for Mac OS X. Therefore, we suggest to use Cura. Cura can also be used on Windows and Unix.

Go to *http://software.ultimaker.com* to find the latest version.

1. When first installed, you will be guided through the set-up process for your printer.

Use following print screens to configure your Tripodmaker.

Configuration Wizard
Select your machine
What kind of machine do you have:
Ultimaker2
Ultimaker Original
Ultimaker Original+
Printrbot
Lulzbot TAZ
Lulzbot Mini
Other (Ex: RepRap, MakerBot, Witbox)
The collection of anonymous usage information helps with the continued improvement of Cura.
This does NOT submit your models online nor gathers any privacy related information.
Submit anonymous usage information:
For full details see: http://wiki.ultimaker.com/Cura:stats
< Back
Next >
Cancel

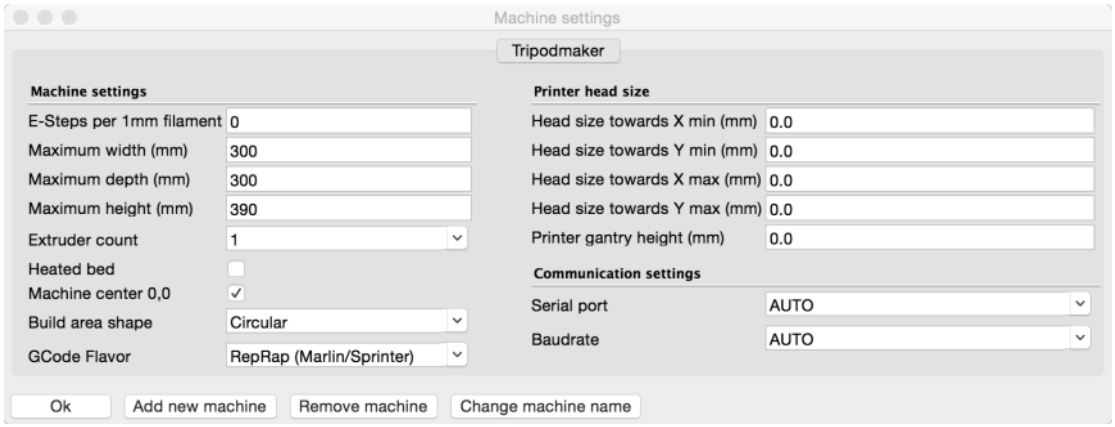


2. If you have an optional heated bed platform, don't forget to check the heated bed box.

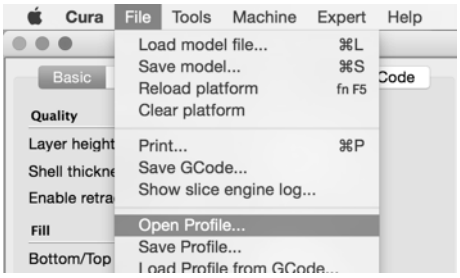
Machine width: 300mm
Machine depth: 300mm
Machine height: 390mm
Nozzle size: 0.4mm
Heated bed - optional
Bed center is (0,0,0) - Yes

Configuration Wizard
Custom RepRap information
RepRap machines can be vastly different, so here you can set your own settings.
Be sure to review the default profile before running it on your machine.
If you like a default profile for your machine added,
then make an issue on github.
You will have to manually install Marlin or Sprinter firmware.
Machine name
Tripodmaker
Machine width (mm)
300
Machine depth (mm)
300
Machine height (mm)
390
Nozzle size (mm)
0.4
Heated bed
Bed center is 0,0,0 (RoStock)
< Back
Finish
Cancel

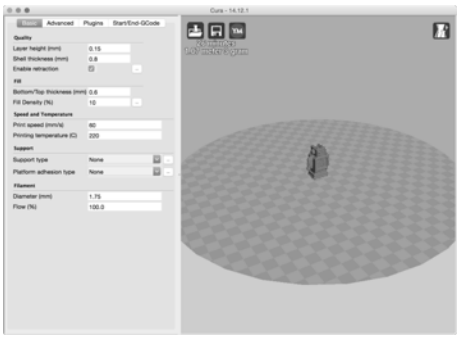
3. When successfully installed, go to machine settings and check the box for the round build platform if this was not selected automatically. Check all values in this screen.



4. To get all needed settings loaded in Cura, download *Cura for Tripodmaker Model File* and open the INI file in Cura.



5. Open a file with the folder button ( ) and save it to the SD-card with the save button ( ).



Maintenance of your Tripodmaker

Moving parts

Keep the wheels and magnetic bearings free of dust. These black components are mad from POM and attract dust. Preventing dust to accumulate elongates their lifetime.

Check your carts on wobble after a while. If the carts are loose on the track, you can tighten the eccentric nut in order to remove the cart wobble. The carts must run smooth. If you over tighten the eccentric nut, you will need to use allot of force to move the cart and it will seem you have "hick-ups" during the sliding maneuver.

Nozzle and hot-end

Make sure that the nozzle and hot-end are cleaned when loaded with plastic residues. To clean of the nozzle, simply heat it until the plastic gets sticky, and use a printed cube to peel of the sticky plastic.

Trouble shooting and easy fixes

Print doesn't stick to the printer bed or detaches on certain spots.

Causes:

- Build plate is not leveled properly.

Solution:

Try to level the build plate.

- Material is not sticking to the build plate.

Solutions:

Try to use new tape.
Slow down the first layer of your print.
Try to use a raft in case of thin walled prints.

The print is stuck on the build plate.

Solution:
Use a putty knife to get the pieces from the build plate.

Clogged nozzle

Solution

Try manually feeding the nozzle while setting temperature on 245 degrees.
In case this doens't solve the problem, contact support: support @ tripodmaker.com.

The filament is stuck

Causes:

- Filament is stuck in the nylon tube due to a blob that is retracted in the tube.

Solution:
Remove the tube out of its couplings and remove the filament. The tube can be removed by pushing in the couplings in the opposite direction you want to pull out the tube.

- The filament is stuck in the cold zone of the nozzle

Solution

Contact support: support @ tripodmaker.com.

The display shows Error Min Temp or Error Max Temp.

Cause:

A problem occurred within the electronics.

Solution

Contact support: support @ tripodmaker.com

Safety

The TripodMaker is an electrical device and contains motors and hot elements. During operation of the printer, be always aware of possible hazards.

Age Warning

User under the age of 18 are recommended adult supervision. The printer includes small parts that can lead to choking.

Burn Hazard

The extruder nozzle or heated building platform might be hot during operation. Never touch these before they cooled down. This can take more than 20 minutes. Also the extruded plastic is hot and should not be touched.

Electric Shock Hazard

When the printer powered, touching the electronics may result in an electric shock. Make sure you disconnected the power source and power supply when opening the electronics. Wait at least one minute before opening the box to allow the power supply to discharge.

Fire Hazard

Keep flammable liquids and/or materials away from the printer when powered or in operation.

Pinch Hazard

During operation, keep fingers, hair and loose clothing away from moving parts like belts, pulleys, gears or fans.

Static Charge

Ground yourself before touching the printer electronics. Electrostatic charge can damage electronic components. Ground yourself by touching a grounded source.